

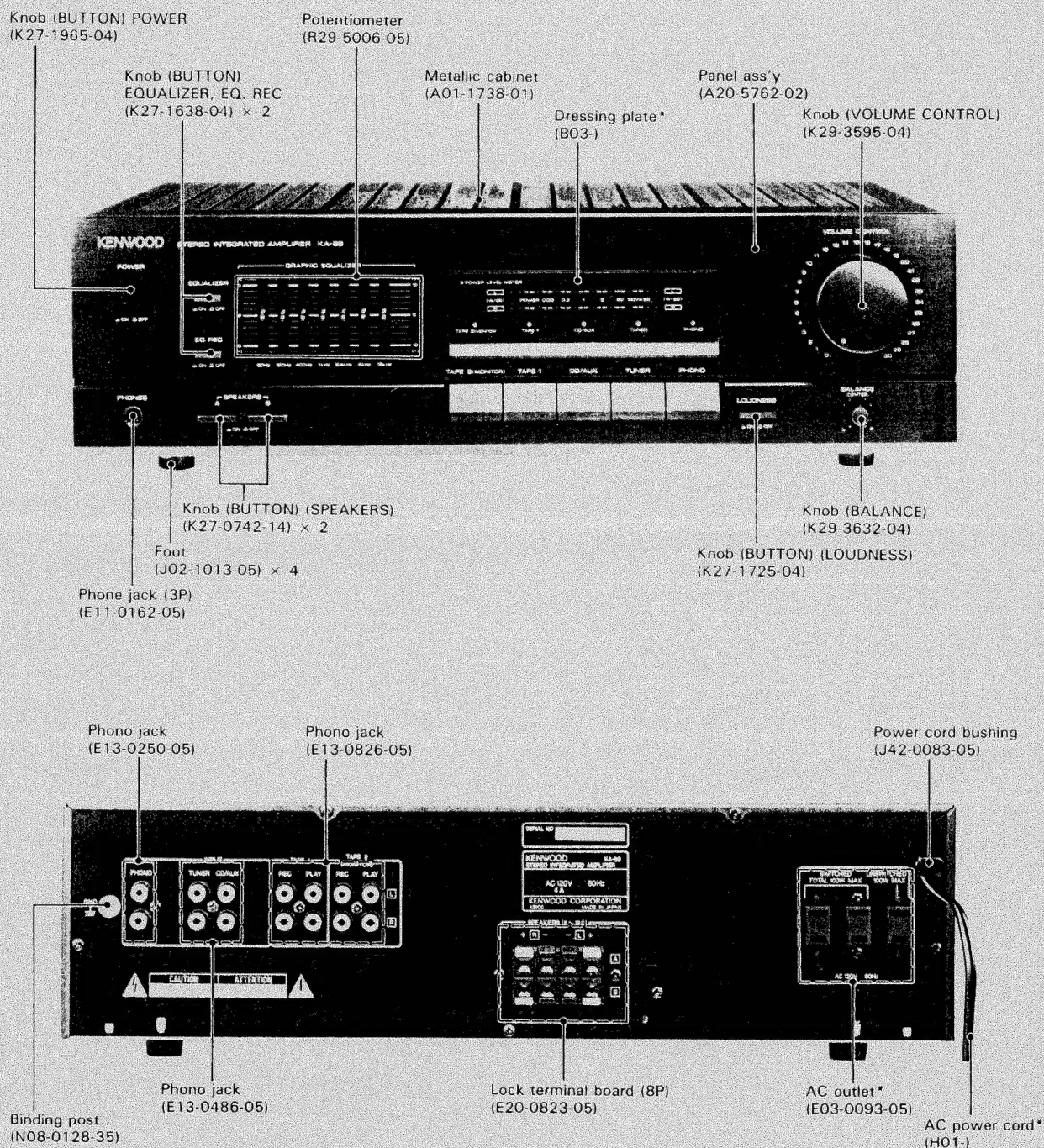
STEREO INTEGRATED AMPLIFIER

# KA-88

## SERVICE MANUAL

# KENWOOD

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B51-3867-00(T)2639



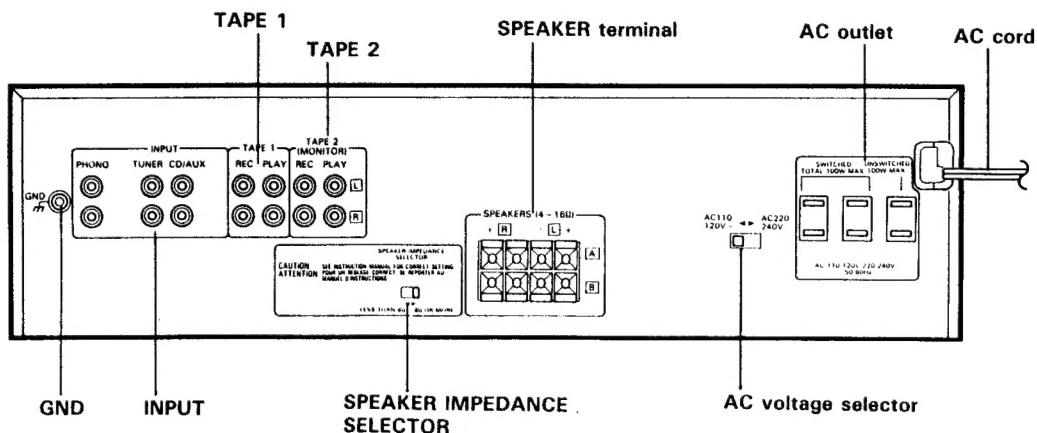
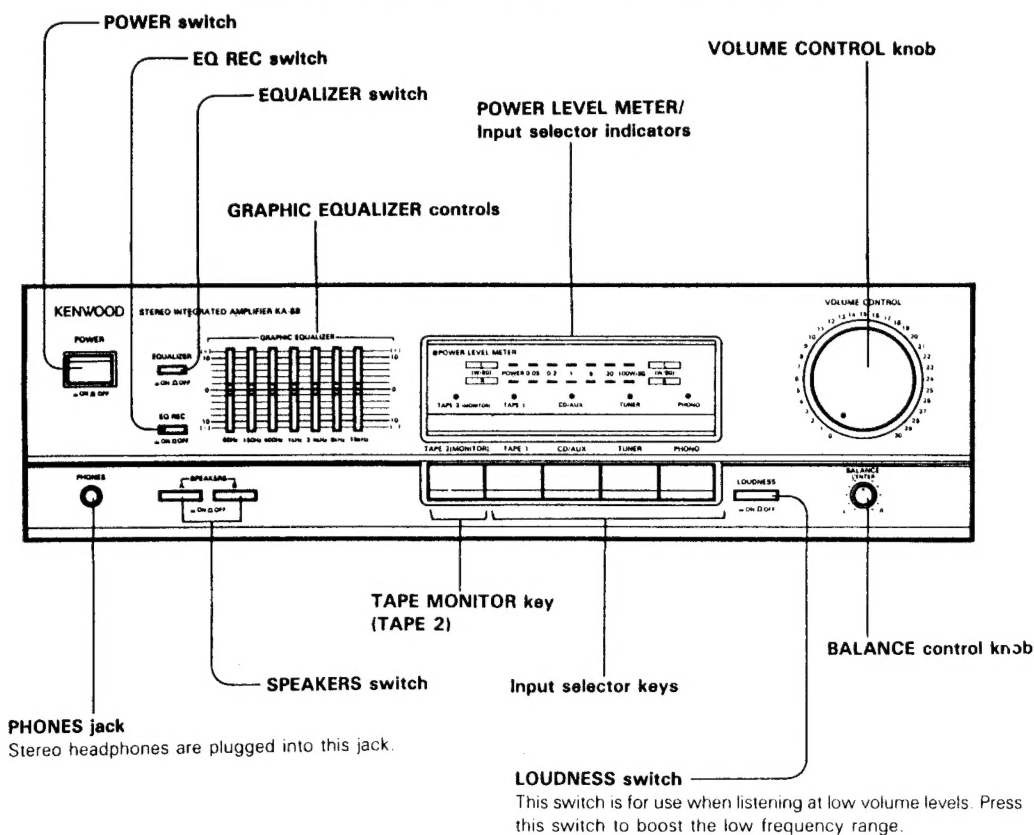
\*Refer to parts list on page 20.

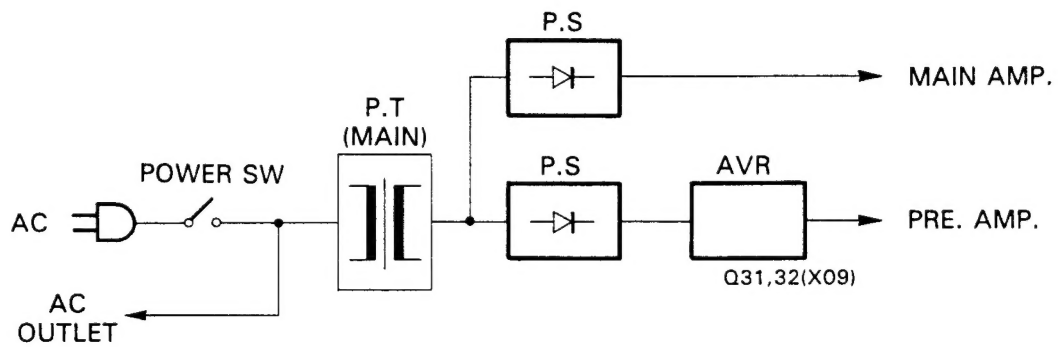
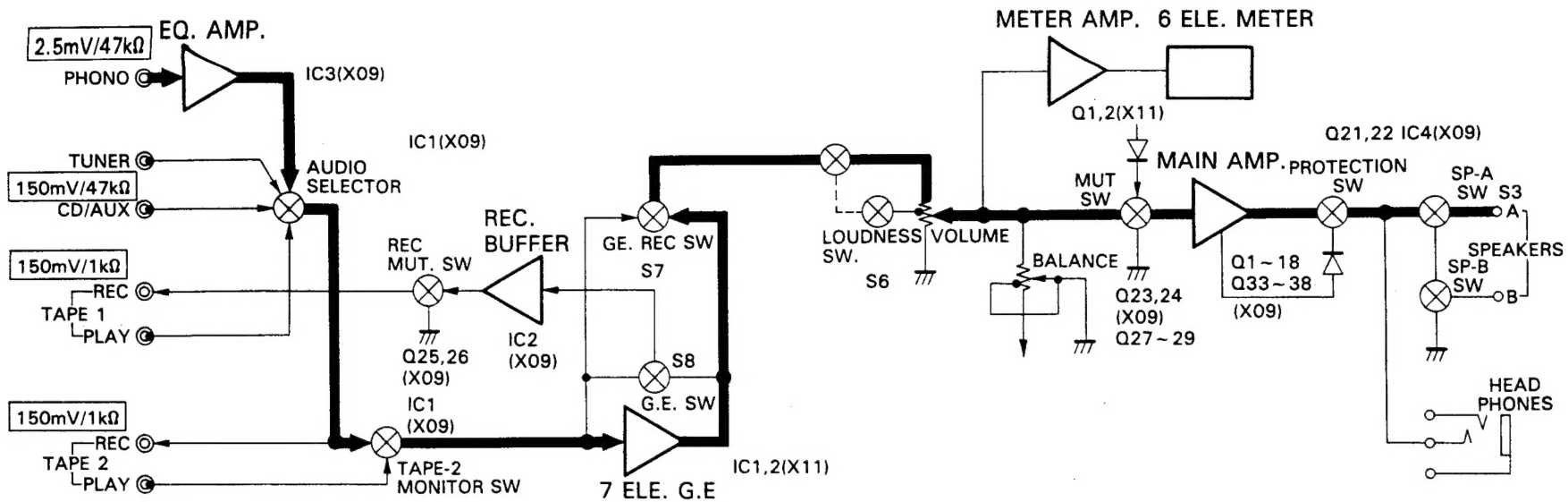
# KA-88

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## CONTROLS AND INDICATORS





BLOCK & LEVEL DIAGRAM

KA-88

# KA-88

## CIRCUIT DESCRIPTION

### tone control unit (X11-263X-XX)

Ref.No.	Name	Use and Function	Operation/Condition/Compatibility
IC1, 2	M5229P	7-device graphic equalizer	Here are incorporated seven devices as OP amp type resonance circuits and one device as an output OP amp. This consists of externally connected variable resistor and capacitor setting the resonance frequency and Q. This is the graphic equalizer circuit in which the frequency range between 60 Hz and 15 kHz is divided seven equally for one channel.
IC3	NJM2058D μPC4574C	4-device OP amp	For one channel, OP amp devices are used in series. This is the power level meter circuit in which buffer is placed in the former stage and inversion and compression amps are in the latter stage. Incorporated for two channels.
Q1,2	2SA733(A) 2SA933S	Transistors	Power level meter circuit LED lighting. LED lighting driver, which also provides level compensation.
Q3,4	2SC1740S 2SC945(A)	Transistors	Power level meter circuit LED lighting. Integration driver.
D21,22	HZS2,7N(B2) RD2,7ES(B2)	Zener diodes	Used for the compression amp device in the latter stage in IC3. The audio signal is compressed by making use of zener property when middle or high power is engaged.

### audio unit (X09-284X-XX)

Ref.No.	Name	Use and Function	Operation/Condition/Compatibility
IC1	LC7818	Input selector	C-MOS ±13V
IC2	μPC4570C-A	TAPE-1 REC OUT buffer	
IC3	μPC4570C-A	PHONO EQ amp.	
IC4	μPC1237HA	Protection	Reset type
Q1~4	2SC1845(F,E)	Class A first stage amp	
Q5~8	2SA992(F,E)	Class A second stage amp	
Q9,10	2SC2632(Q,R,S)	A class amp.	
Q11~14	2SC2632(Q,R,S)	Third stage amp	
Q15,16	2SA1124(Q,R,S)	Current mirror	
Q17~20	2SA1535(Q,R,S) 2SC3944(Q,R,S)	Driver	
Q21,22	2SA733(A) 2SA933S	Over current protection	
Q23~26	2SC2878(B)	Mutting	HI:ON
Q27~30	2SA733(A) 2SA933S 2SC1740S 2SC945(A)	Mutting driver	
Q31	2SD882	+13 V regulated voltage	
Q32	2SA954(L,K)	-13 V regulated voltage	
Q39	DTA124EN	For IC1 initialize spec.	Making pin MIN "L" when the +13 V regulated voltage becomes 10 V.

Device of main body part that does not belong to X09 unit.

Ref.No.	Name	Use and Function	Operation/Condition/Compatibility
Q33~36	2SB1162 2SB1163 2SD1717 2SD1718	Final stage	
Q37,38	2SC4137(V,W)	Bias transistors	HI:hfe



# ADJUSTMENT/REGLAGES/ABGLEICH

## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTING	ALIGNMENT POINTS	ALIGN FOR	FIG.
Unless otherwise specified, set the respective switches as follows: POWER: ON SPEAKER: B REC OUT: OFF SELECTOR: PHONO							
1	IDLE CURRENT	—	Connect a DC voltmeter across CP1 (L) CP2 (R) (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X09-)	18mV	(a)

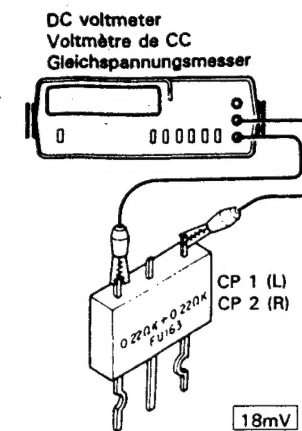
## REGLAGES

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNMENT	ALIGNER POUR	FIG.
Sauf indication contraire, régler comme suit les commandes respectives: POWER: ON SPEAKER: B REC OUT: OFF SELECTOR: PHONO							
1	COURANT DE POLARISATION	—	Connecter un voltmètre de CC SUR CP1 (G) CP2 (D) (X09-)	VOLUME: 0	VR1 (G) VR2 (D) (X09-)	18mV	(a)

## ABGLEICH

NR.	GENGENSTAND	EINGANGS- EINSTELLUNG	AUSANG- EINSTELLUNG	VORSTÄRKER- EINSTELLUNG	ABGLEICHE- PUNKTE	ABGLEICHEN FÜR	ABB.
Wenn nicht anders angegeben, die einzelnen Schalter wie folgt einstellen: POWER: ON SPEAKER: B REC OUT: OFF SELECTOR: PHONO							
1	LEERLAUFSTROM	—	Einen Gleichspannungs- messer über CP1 (L) CP2 (R) anschießen. (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X09-)	18mV	(a)

## ADJUSTMENT/REGLAGES/ABGLEICH



## VOLTAGE TABLES

## AUDIO UNIT(X09-28XX-XX)

## IC1

9	-12V
22	12V

## IC2

1,2	0V
4	-12V
6,7	0V
8	12V

## IC3

1	0V
4	-12V
7	0V
8	12V

## IC4

3	0V
4	2.8V
5	0V
6	0.7V
7	2.2V
8	3.4V

## Q1~4

E	-0.6V
C	64.4V
B	0V

## Q5~8

E	65V
C	-
B	64.4V

## Q9,10

E	-0.6V
C	-
B	0V

## Q11,12

E	-64V
C	-0.6V
B	-63.4V

## Q13,14

E	-64V
C	-1.2V
B	-63.4V

## Q15,16

E	62V
C	1.2V
B	61.4V

## Q17,18

E	-0.6V
C	-66.5V
B	-1.2V

## Q19,20

E	0.6V
C	66.5V
B	1.2V

## Q27

E	12V
C	-
B	-

## Q31

E	12.7V
C	30V
B	-

## Q32

E	-12.7V
C	-30V
B	-

## Q33,34

E	-
C	-66.5V
B	-

## Q35,36

E	-
C	66.5V
B	-

## Q39

E	12V
C	-
B	-

## TONE UNIT(X11-263X-XX)

## IC1,2

18	12V
20	-12V

## IC3

1	0V
4	12V
6~9	12V
11	-12V
14	0V

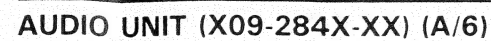
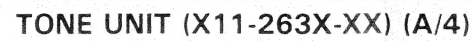
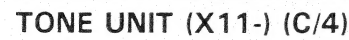
## Q1

E	11V
C	0V
B	11V

## Q3

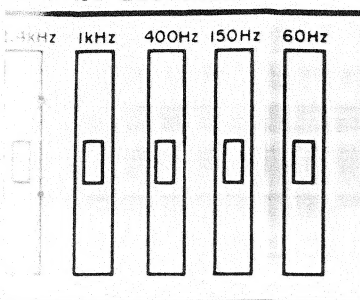
E	0V
C	11V
B	0.4V

1  
2  
3  
4  
5  
6  
7

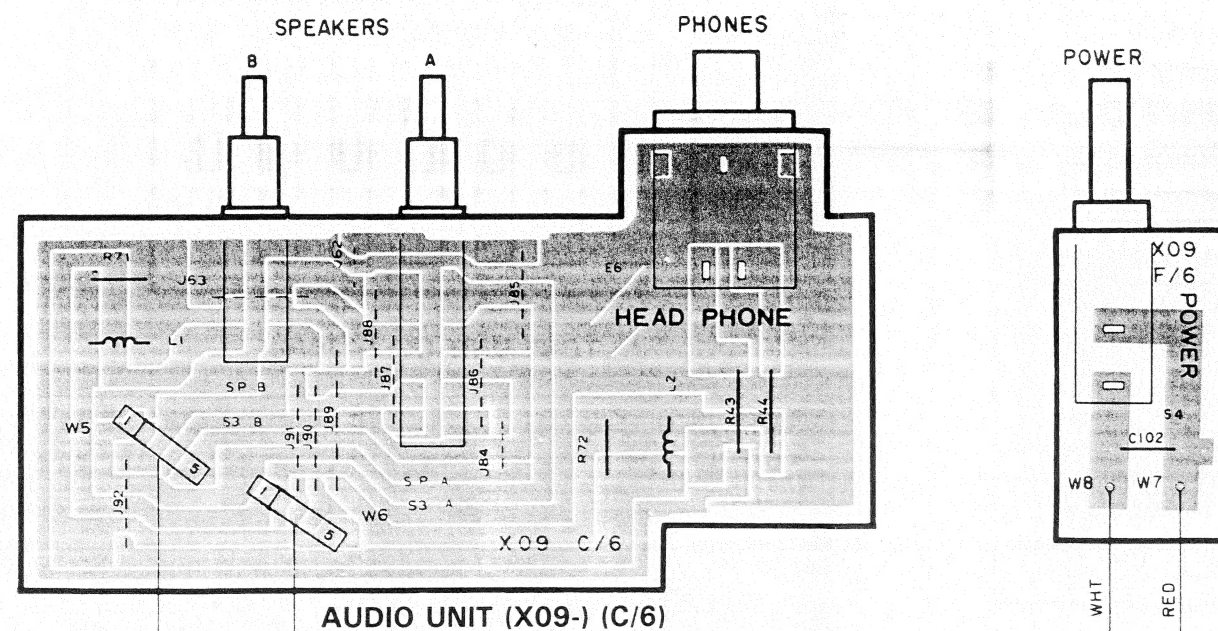
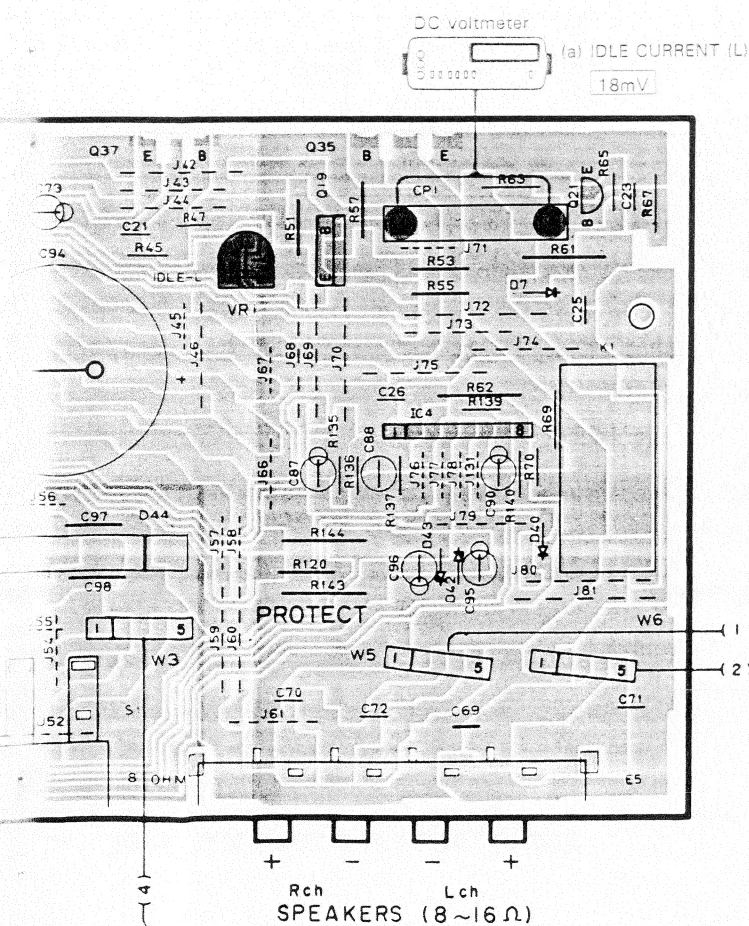
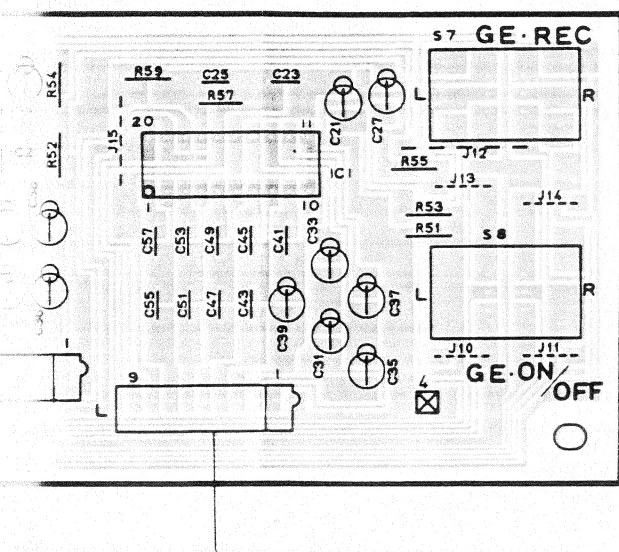




GRAPHIC EQUALIZER



R29-5006-05

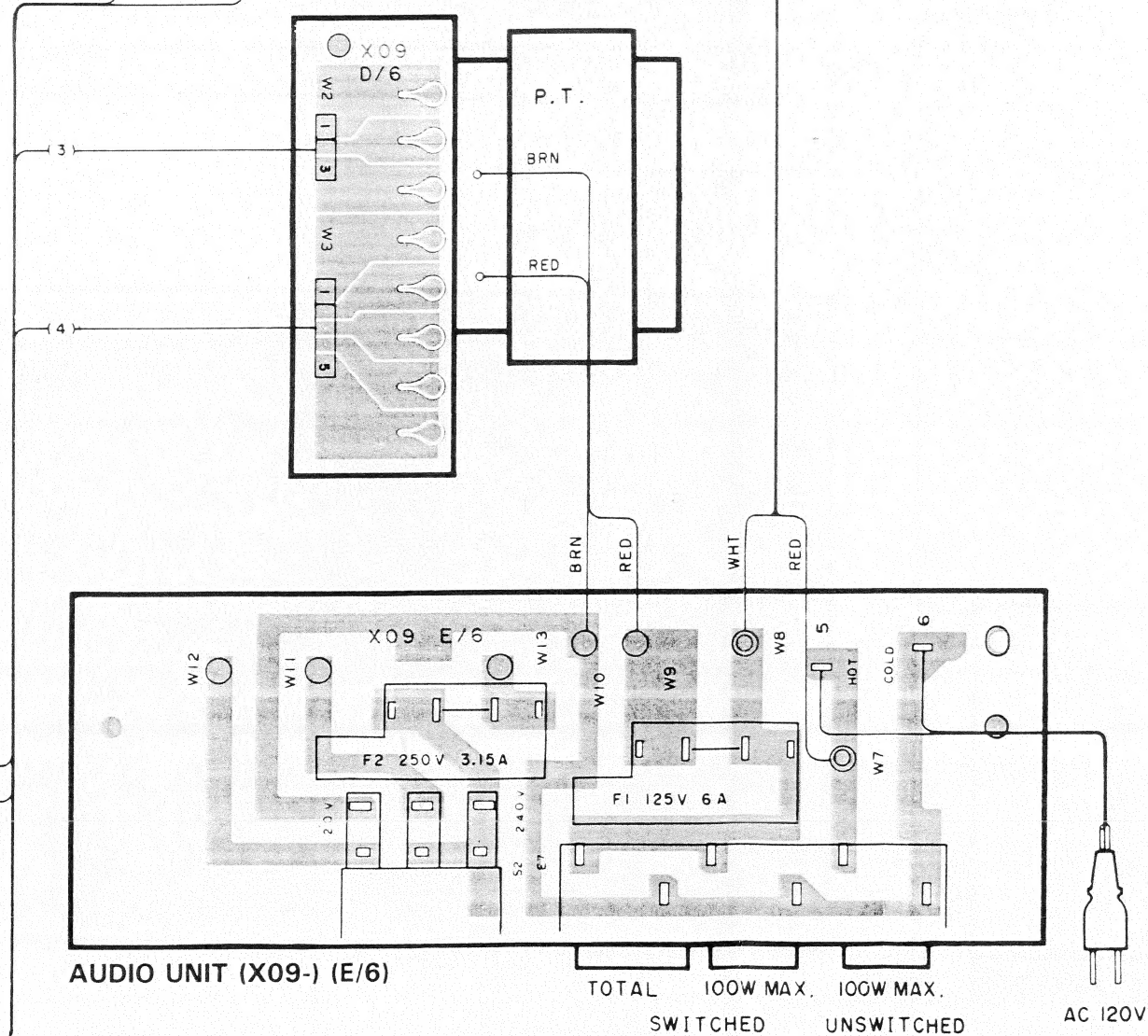


AUDIO UNIT (X09-284X-XX)

Ref.	No.	Address
IC	Q	
	1	6F
	2	6F
	3	6F
	4	6F
	5	6G
	6	6F
	7	6G
	8	6E
	9	5G
	10	5E
	11	5G
	12	5E
	13	6G
	14	5E
	15	5F
	16	5E
	17	5I
	18	5G
	19	5J
	20	5F
	21	5K
	22	5F
	23	6F
	24	6F
	25	6C
	26	6C
	27	6F
	28	6F
	29	6F
	30	6D
	31	6H
	32	6H
	39	5D
1		5B
2		6D
3		6B
4		5J

**TONE UNIT (X11-263X-XX)**

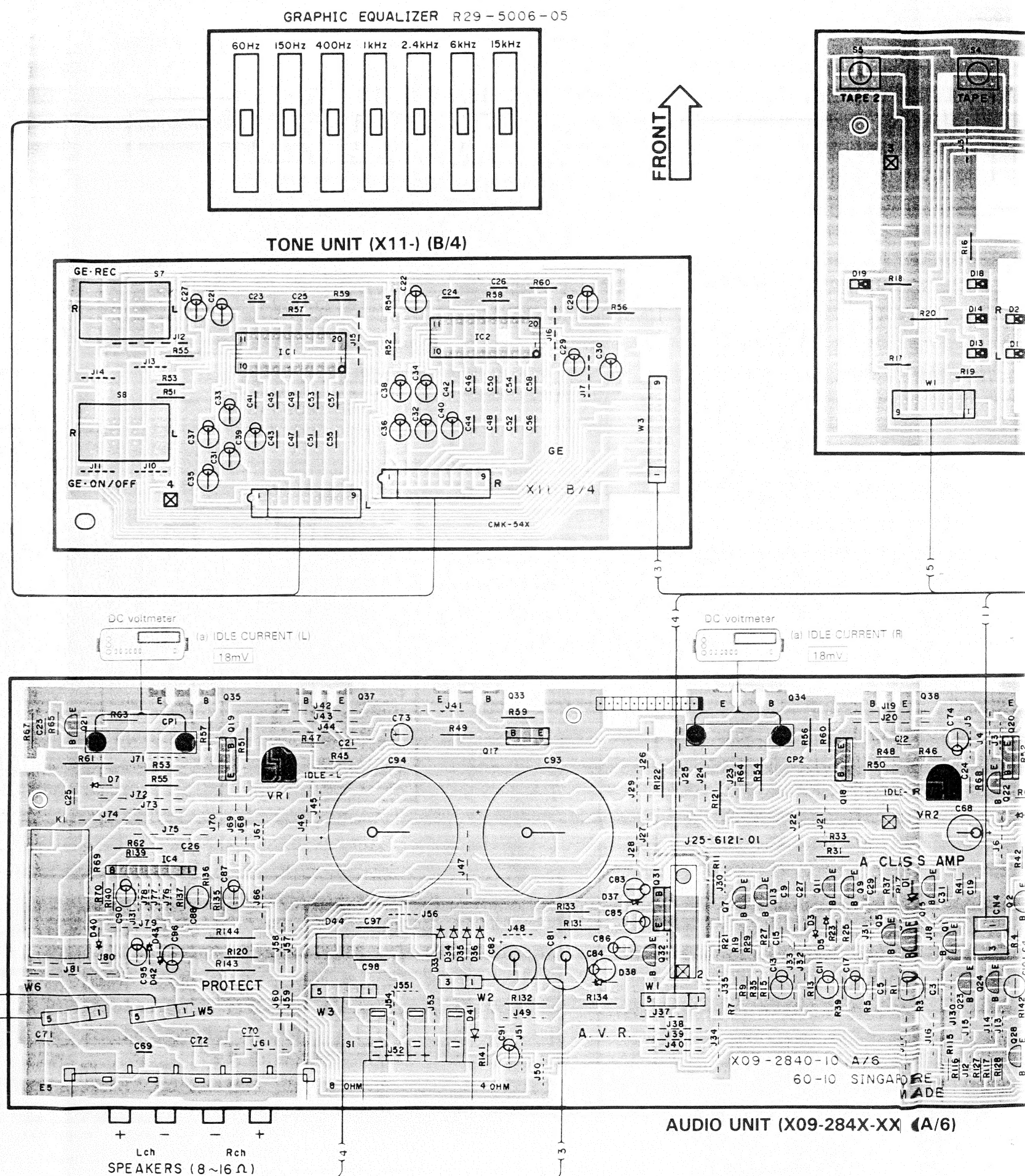
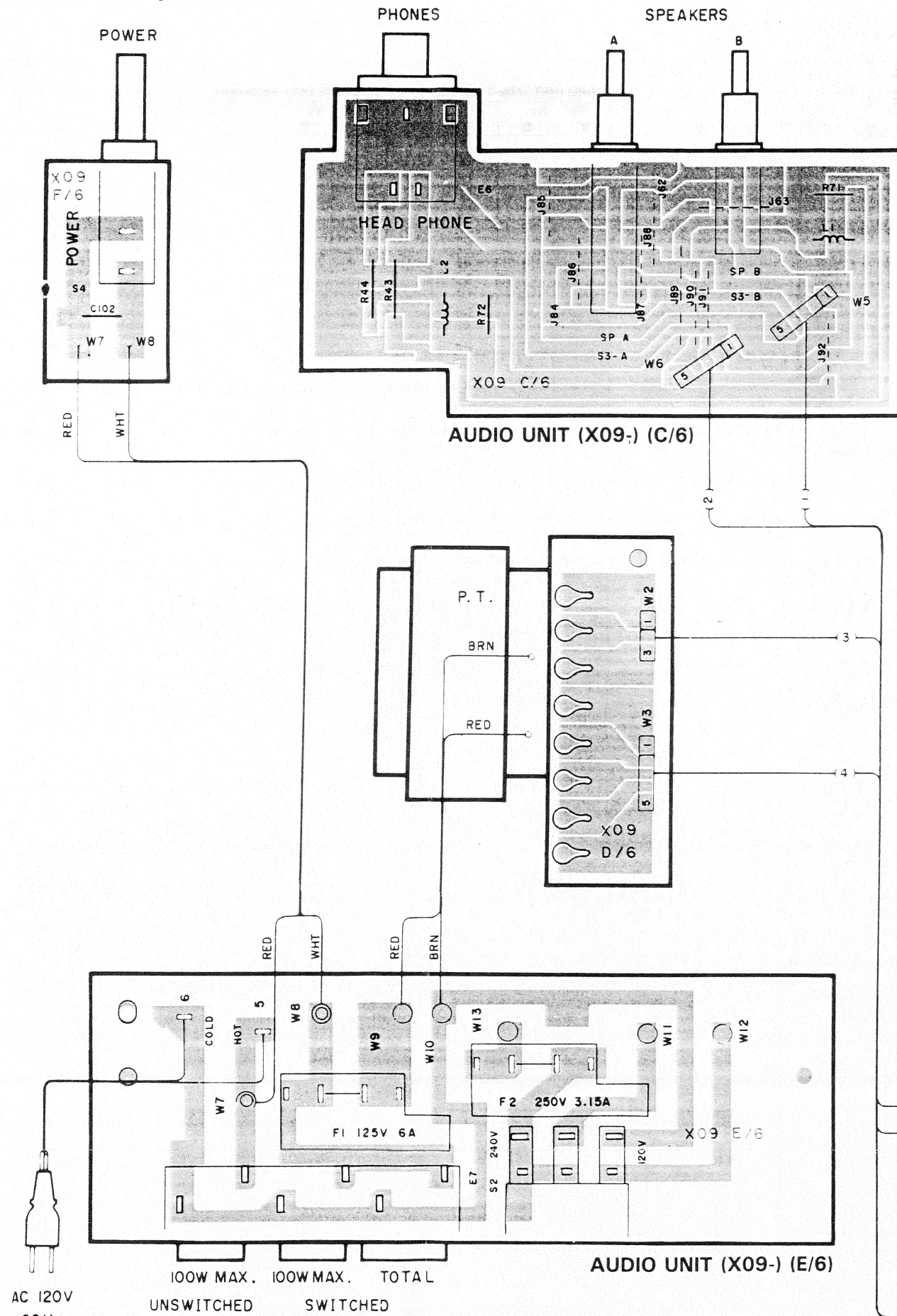
Ref. No.		Address
IC	Q	
	1	3E
	2	2E
	3	2C
	4	2C
1		2J
2		2I
3		2B



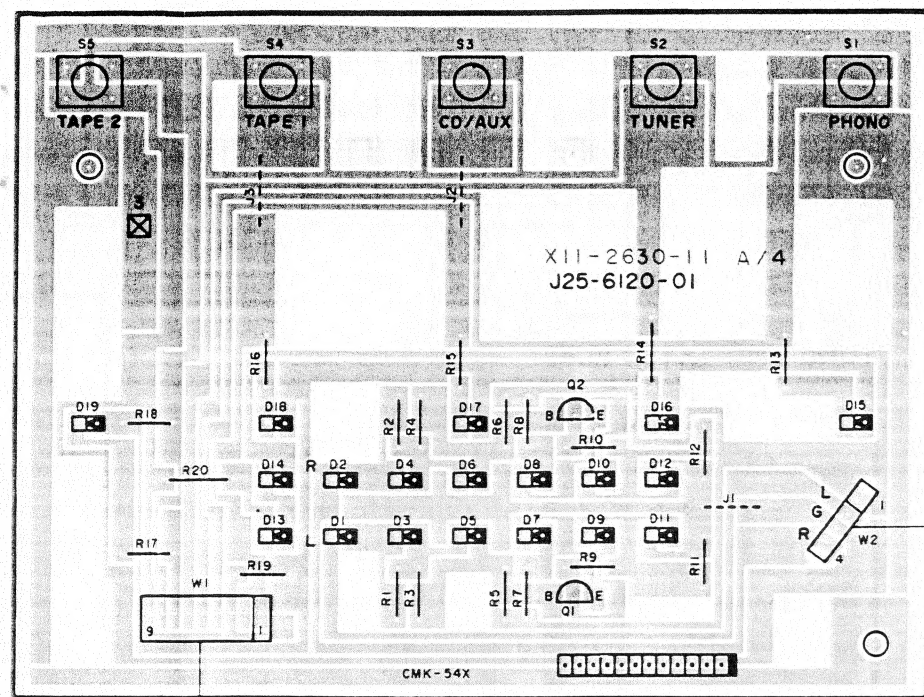
Refer to the schematic diagram for the values of resistors and capacitors.



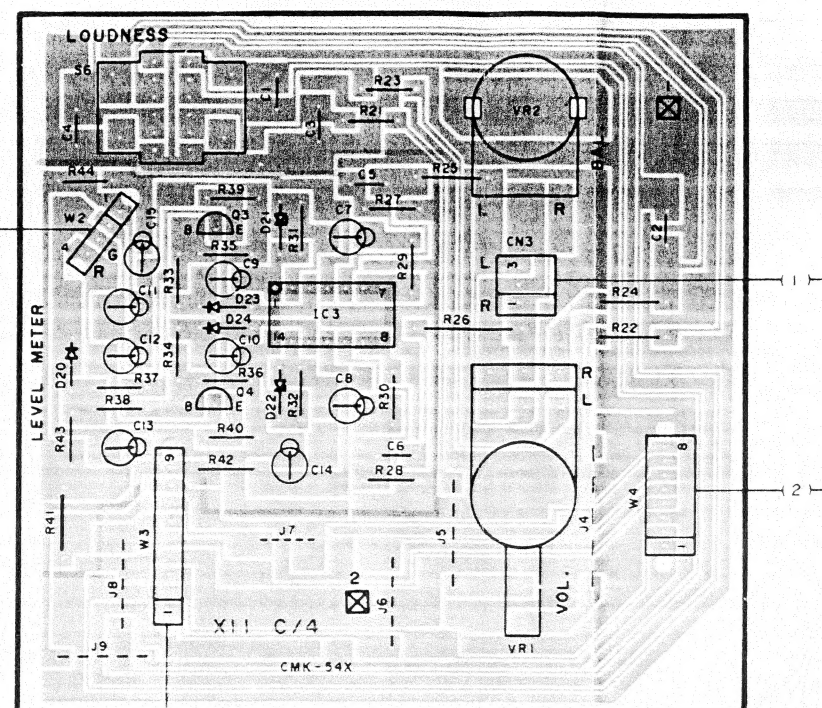
# PC BOARD (Foil side view)







TONE UNIT (X11-263X-XX) (A/4)



TONE UNIT (11-) (C/4)

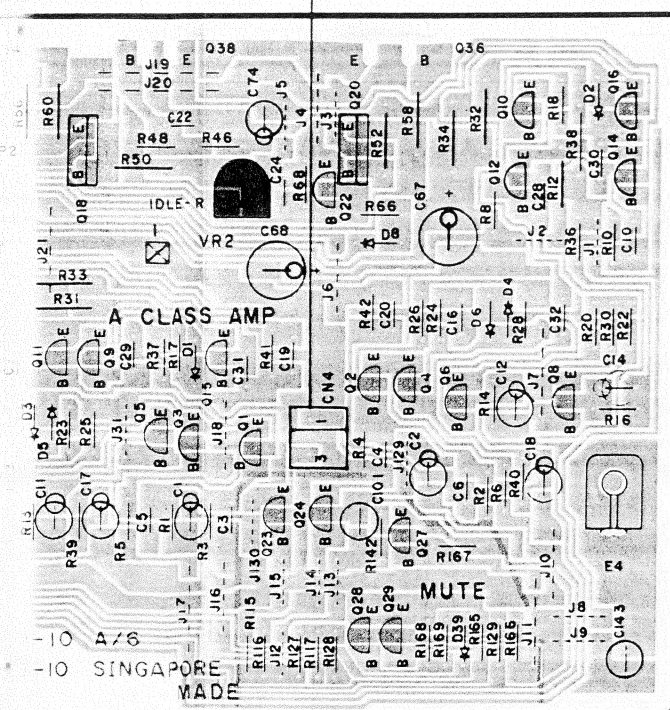
AUDIO UNIT (X09-284X-XX)

Ref. No.	IC	Q	Address
1		6AC	
2		6AC	
3		6AC	
4		6AC	
5		6AC	
6		6AD	
7		5AB	
8		6AD	
9		5AC	
10		5AD	
11		5AB	
12		5AD	
13		5AB	
14		5AD	
15		5AC	
16		5AD	
17		5AA	
18		5AB	
19		5Y	
20		5AC	
21		5X	
22		5AC	
23		6AC	
24		6AC	
25		6AF	
26		6AF	
27		6AC	
28		6AC	
29		6AC	
30		6AE	
31		6AB	
32		6AA	
39		5AE	
1		5AG	
2		6AE	
3		6AH	
4		5Y	

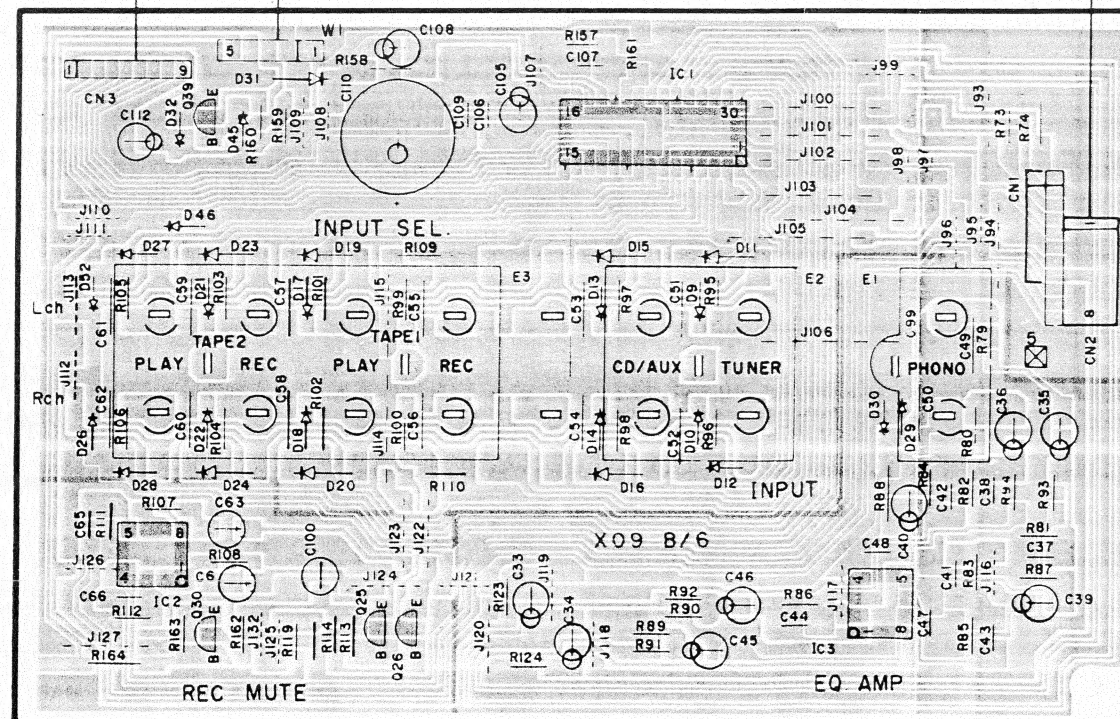
TONE UNIT (X11-263X-XX)

Ref. No.	IC	Q	Address
1		3AD	
2		2AD	
3		1AF	
4		2AF	
1		2Z	
2		2AA	
3		2AG	

OLE CURRENT (R)  
3mV



X09-284X-XX) (A/6)

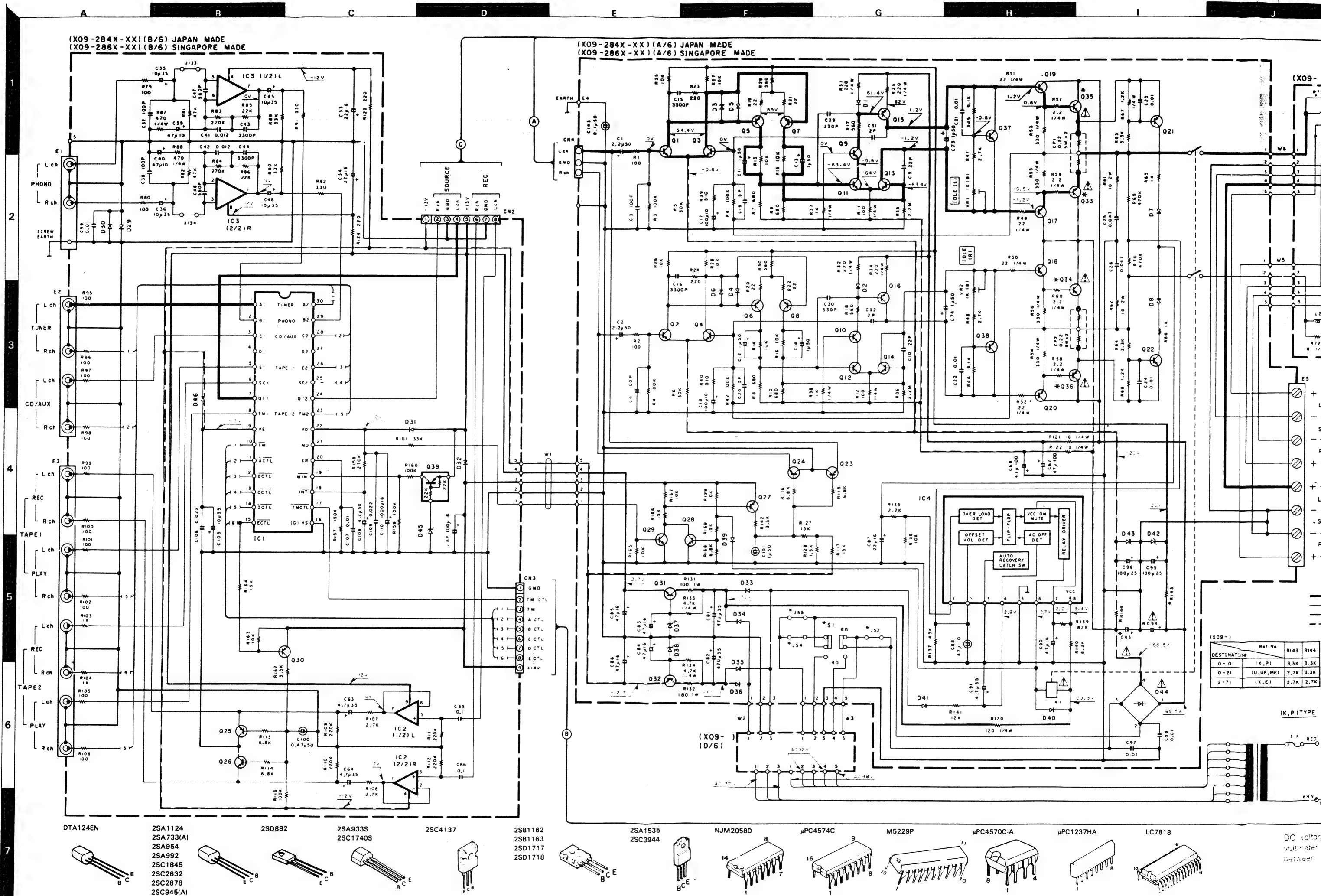


AUDIO UNIT (X09-) (B/6)

KA - 88 (K)

Refer to the schematic diagram for the values of resistors and capacitors.



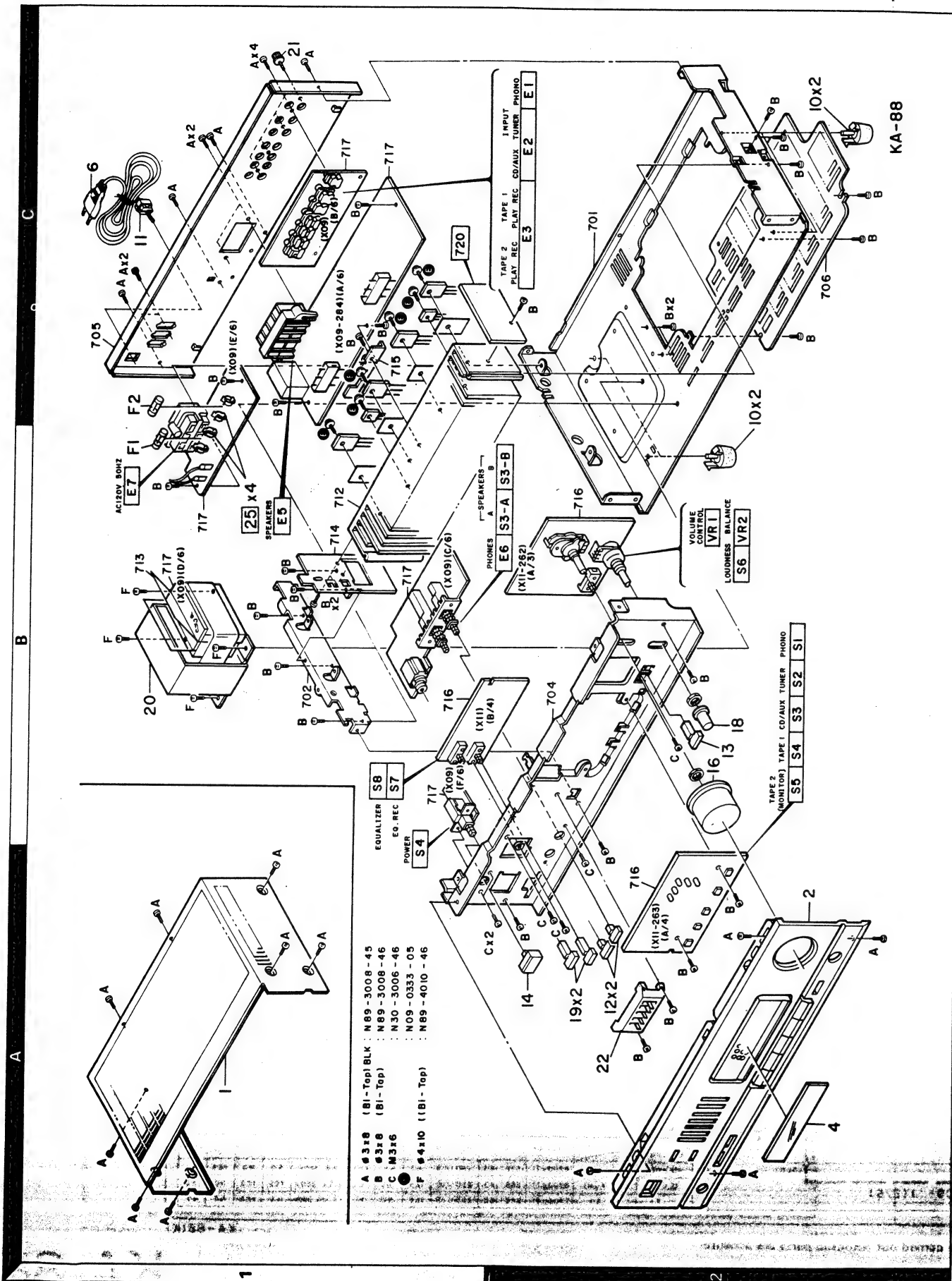






KA-88

## EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

## PARTS LIST

## ✧ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le **Parti No.** ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
<b>KA-88</b>						
1	1A		A01-1738-01	METALLIC CABINET		
2	2A	*	A20-5762-02	PANEL ASSY		
4	2A	*	B03-2524-04	DRESSING PLATE		J
4	2A	*	B03-2536-04	DRESSING PLATE		S
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-9470-00	INSTRUCTION MANUAL		J
-		*	B50-9471-00	INSTRUCTION MANUAL	PME	J
-		*	B50-9473-00	INSTRUCTION MANUAL	M	J
-		*	B50-9475-00	INSTRUCTION MANUAL	E	J
-		*	B50-9647-00	INSTRUCTION MANUAL		S
-		*	B50-9648-00	INSTRUCTION MANUAL	PME	S
-		*	B50-9650-00	INSTRUCTION MANUAL	M	S
-		*	B50-9652-00	INSTRUCTION MANUAL	E	S
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UUE	
-			B58-0803-13	CAUTION CARD	E	
△	6		E30-0459-05	AC POWER CORD	E	
△	6		E30-0812-05	AC POWER CORD	UUEM	
△	6		E30-0974-05	AC POWER CORD	KP	J
△	6		E30-1341-05	AC POWER CORD	X	
△	6		E30-2209-05	AC POWER CORD	KP	S
△	F1		F05-3121-05	FUSE (SEMKO) (250V T3.15A)	XE	
△	F1		F05-3123-05	FUSE (250V 3.15A)	UUEM	
	F1		F05-6029-05	FUSE (UL)	KP	
	F2		F05-6324-05	FUSE (250V 6.3A)	UUEM	
-		*	H01-8442-04	ITEM CARTON CASE		J
-		*	H01-8515-04	ITEM CARTON CASE		S
-		*	H10-3845-02	POLYSTYRENE FOAMED FIXTURE		J
-		*	H10-3846-02	POLYSTYRENE FOAMED FIXTURE		J
-			H10-3847-02	POLYSTYRENE FOAMED FIXTURE		S
-			H10-3848-02	POLYSTYRENE FOAMED FIXTURE		S
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
△	10		J02-1013-05	FOOT		
	11		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
12	2A		K27-0742-14	KNØB (BUTTON)SPEAKERS		
13	2B		K27-1725-04	KNØB (BUTTON)LOUDNESS		
14	2A	*	K27-1965-04	KNØB (BUTTON)POWER		
16	2B	*	K29-3595-04	KNØB VOLUME CONTROL		
18	2B		K29-3632-04	KNØB BARANCE		
19	2A		K27-1638-04	KNØB (BUTTON)EQUALIZER, EQ, REC		
20	1B		L01-7621-05	POWER TRANSFORMER	KP	
20	1B		L01-7622-05	POWER TRANSFORMER	X	
20	1B		L01-7625-05	POWER TRANSFORMER	UUEM	
20	1B		L01-7627-15	POWER TRANSFORMER	E	

**E: Scandinavia & Europe K: USA P: Canada**

U: PX(Far East, Hawaii)    T: England    M: Other Areas

UE : AAFES(Europe)      X: Australia

**J:Japan made**

**S:Singapore made**

 indicates safety critical components.

## PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考		
21 A B C E  F  22  Q33,34 Q33,34 Q35,36 Q35,36 Q37,38	1C 1A,1C 1B,2A 2A 1C  1B  2A		N08-0128-35 N89-3008-45 N89-3008-46 N30-3006-46 N09-0333-05  N89-4010-46  R29-5006-05  2SB1162 2SB1163 2SD1717 2SD1718 2SC4137(V,W)	BINDING POST BINDING HEAD TAPTITE SCREW BINDING HEAD TAPTITE SCREW PAN HEAD MACHINE SCREW TAPPING SCREW (3X12,+)  BINDING HEAD TAPTITE SCREW  POTENTIOMETER  TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR				
AUDIO UNIT (X09-284X-XX) Japan made:0-10:K,P 0-21:U,UE,M 2-71:X,E Singapore made:60-10:K,P 60-21:U,UE,M 62-71:X,E								
C1 ,2 C1 ,2 C3 ,4 C9 ,10 C11 ,14  C11 ,14 C15 ,16 C17 ,18 C17 ,18 C19 ,20  C21 ,22 C23 ,24 C25 ,26 C29 ,30 C31 ,32  C33 ,34 C33 ,34 C35 ,36 C35 ,36 C37 ,38  C39 ,40 C39 ,40 C41 ,42 C43 ,44 C45 ,46  C45 ,46 C47 ,48 C63 ,64 C63 ,64 C65 ,66  C67 ,68 C67 ,68 C73 ,74 C73 ,74 C81 ,82  C81 ,82 C83 ,86 C83 ,86 C87 C87			CE04KW1H2R2M CE04LW1H2R2M CC45FSL1H101J CC45FSL1H220J CE04KW1H010M  CE04LW1H010M CF92FV1H332J CE04KW1A101M CE04LW1A101M CC45FSL1H050C  CK45FF1H101Z CF92FV1H103J CF92FV1H473J CC45FSL1H331J CC45FSL1H020C  CE04KW1C220M CE04LW1C220M CE04KW1V100M CE04LW1V100M CC45FSL1H101J  CE04KW1A470M CE04LW1A470M CF92FV1H123J CF92FV1H332J CE04KW1V100M  CE04LW1V100M CK45FB1H561K CE04KW1V4R7M CE04LW1V4R7M CF92FV1H104J  CE04KW2A470M CE04LW2A470M CE04KW1H010M CE04LW1H010M CE04KW1V471M  CE04LW1V471M CE04KW1C470M CE04LW1C470M CE04KW1C220M CE04LW1C220M	ELECTRN ELECTRN CERAMIC CERAMIC ELECTRN  ELECTRN MF MF ELECTRN ELECTRN CERAMIC  CERAMIC MF MF CERAMIC CERAMIC  ELECTRN ELECTRN ELECTRN ELECTRN CERAMIC  ELECTRN ELECTRN MF MF ELECTRN  ELECTRN CERAMIC ELECTRN ELECTRN MF  ELECTRN ELECTRN ELECTRN ELECTRN ELECTRN  ELECTRN ELECTRN ELECTRN ELECTRN ELECTRN	2.2UF 2.2UF 100PF 22PF 1.0UF  1.0UF 3300PF 100UF 100UF 5.0PF  0.010UF 0.010UF 0.047UF 330PF 2.0PF  22UF 22UF 10UF 10UF 100PF  47UF 47UF 0.012UF 3300PF 10UF  10UF 560PF 4.7UF 4.7UF 0.10UF  47UF 47UF 1.0UF 1.0UF 470UF  470UF 47UF 47UF 22UF 22UF	50WV 50WV J J 50WV  50WV J J J C  Z J J J J C  16WV 16WV 35WV 35WV J  10WV 10WV J J 35WV  K 35WV 35WV J  100WV 100WV 50WV 50WV 35WV  35WV 16WV 16WV 16WV 16WV		

E: Scandinavia &amp; Europe K: USA

P: Canada

J: Japan made

U: PX(Far East, Hawaii)

T: England

M: Other Areas

S: Singapore made

UE: AAFES(Europe)

X: Australia

△ indicates safety critical components.

KA-88

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
C88 C90 C90 C91 C91			C90-1334-05 CE04KW1C470M CE04LW1C470M CE04KW1V4R7M CE04LW1V4R7M	NP-ELEC 47UF 10WV ELECTR0 47UF 16WV ELECTR0 47UF 16WV ELECTR0 4.7UF 35WV ELECTR0 4.7UF 35WV		J S J S
C93 ,94 C93 ,94 C95 ,96 C95 ,96 C97 ,98		*	C90-1760-05 C90-1761-05 CE04KW1E101M CE04LW1E101M CK45FE2H103P	ALUMINIUM ELECTROLYTIC C. ALUMINIUM ELECTROLYTIC C. ELECTR0 100UF 25WV ELECTR0 100UF 25WV CERAMIC 0.010UF P	KPUUEM XE	J S
C99 C100 C101 C102 C102			C91-0769-05 C90-1331-05 C90-1349-05 C91-0023-05 C91-0647-05	CERAMIC 0.01UF M NP-ELEC 0.47UF 50WV NP-ELEC 1UF 50WV CERAMIC 0.01UF AC250V CERAMIC 0.01UF P	UUEM XE	
C102 C105 C105 C106 C107			C91-0971-05 CE04KW1V100M CE04LW1V100M CK45FF1H223Z CF92FV1H103J	FILM 0.01UF 250WV ELECTR0 10UF 35WV ELECTR0 10UF 35WV CERAMIC 0.022UF Z MF 0.010UF J	KP	J S
C108 C108 C109 C110 C112			CE04KW1V4R7M CE04LW1V4R7M CK45FF1H223Z C90-1256-05 CE04KW1C101M	ELECTR0 4.7UF 35WV ELECTR0 4.7UF 35WV CERAMIC 0.022UF Z ELECTR0 100UF 16WV ELECTR0 100UF 16WV		J S J
C112 C143			CE04LW1C101M C90-1455-05	ELECTR0 100UF 16WV NP-ELEC 0.1UF 50WV		S
E1 E2 E3 E5 E6		*	E13-0250-05 E13-0486-05 E13-0826-05 E20-0823-05 E11-0162-05	PHONE JACK PHONE JACK PHONE JACK LNCK TERMINAL BOARD(8P) PHONE JACK (3P)		
E7			E03-0093-05	AC OUTLET	KPUUEM	
25	1B		J13-0054-05	FUSE CLIP		
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
CP1 ,2 R11 ,12 R31 R31 -34 R32			R90-0187-05 RD14GB2E101J RD14GB2E221J RD14GB2E221J RD14AB2E221J	MULTI-COMP 0.22X2 K 5W FL-PR00F RD 100 J 1/4W FL-PR00F RD 220 J 1/4W FL-PR00F RD 220 J 1/4W FL-PR00F RD 220 J 1/4W		J S J
R33 R34 R43 ,44 R43 ,44 R49 -52			RD14GB2E221J RD14AB2E221J RS14DB3D561J RS14KB3D561J RD14AB2E220J	FL-PR00F RD 220 J 1/4W FL-PR00F RD 220 J 1/4W FL-PR00F RS 560 J 2W FL-PR00F RS 560 J 2W FL-PR00F RD 22 J 1/4W		J J J S J
R49 -52 R53 -56 R53 -56 R57 -60 R57 -60			RD14GB2E220J RD14AB2E331J RD14GB2E331J RD14AB2E2R2J RD14GB2E2R2J	FL-PR00F RD 22 J 1/4W FL-PR00F RD 330 J 1/4W FL-PR00F RD 330 J 1/4W FL-PR00F RD 2.2 J 1/4W FL-PR00F RD 2.2 J 1/4W		S J S J S
R61 R61 ,62			RS14DB3D100J RS14KB3D100J	FL-PR00F RS 10 J 2W FL-PR00F RS 10 J 2W		J S

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R62			RS14KB3D100J	FL-PR00F RS 10 J 2W		J
R71 ,72			RD14AB2E100J	FL-PR00F RD 10 J 1/4W		J
R71 ,72			RD14GB2E100J	FL-PR00F RD 10 J 1/4W		S
R120			RD14AB2E121J	FL-PR00F RD 120 J 1/4W		J
R120			RD14GB2E121J	FL-PR00F RD 120 J 1/4W		S
R121,122			RD14AB2E100J	FL-PR00F RD 10 J 1/4W		J
R121,122			RD14GB2E100J	FL-PR00F RD 10 J 1/4W		S
R131			RS14DB3A101J	FL-PR00F RS 100 J 1W		J
R131			RS14KB3A101J	FL-PR00F RS 100 J 1W		S
R132			RS14DB3A181J	FL-PR00F RS 180 J 1W		J
R132			RS14KB3A181J	FL-PR00F RS 180 J 1W		S
R133,134			RD14AB2E472J	FL-PR00F RD 4.7K J 1/4W		J
R133,134			RD14GB2E472J	FL-PR00F RD 4.7K J 1/4W		S
R143			RS14DB3D222J	FL-PR00F RS 2.2K J 2W	XE	
R143			RS14KB3D272J	FL-PR00F RS 2.7K J 2W	UEM	
R143,144			RS14KB3D332J	FL-PR00F RS 3.3K J 2W	KP	
R144			RS14DB3D272J	FL-PR00F RS 2.7K J 2W	XE	
VR1 ,2			R12-1083-05	TRIMMING POT. (1K)		
K1			S51-2078-05	MAGNETIC RELAY		
S1			S31-2136-05	SLIDE SWITCH (4Ω→8Ω)	UEM	
S1			S31-2136-05	SLIDE SWITCH (4Ω→8Ω)	E	
S2			S31-2131-05	SLIDE SWITCH (POWER TYPE)	UEM	
S3			S42-2153-05	MULTIPLE PUSH SWITCH (SPEAKERS)		
S4			S40-1073-05	PUSH SWITCH (POWER)		
D1 -8			HSS104	DIODE		
D29 -32			1SS133	DIODE		
D33 -36			1SS133	DIODE		
D37 ,38			S5566B	DIODE		
			HZS13N(B2)	ZENER DIODE		
D37 ,38			RD13ES(B2)	ZENER DIODE		
D39 ,40			1SS133	DIODE		
D41			S5566B	DIODE		
D42 ,43			HZS20N(B)	ZENER DIODE		
D42 ,43			RD20ES(B)	ZENER DIODE		
D44			RBV-602LFA	DIODE		
D45			HZS10N(B)	ZENER DIODE		
D45			RD10ES(B)	ZENER DIODE		
D46			1SS133	DIODE		
IC1			LC7818	IC(ELECTRO CONTRL SWITCH (2H)		
IC2 ,3			UPC4570C-A	IC(OP AMP X2)		
IC4			UPC1237HA	IC(POWER AMP)		
Q1 -4			2SC1845(F,E)	TRANSISTOR		
Q5 -8			2SA992(F,E)	TRANSISTOR		
Q9 -14			2SC2632(Q,R,S)	TRANSISTOR		
Q15 ,16			2SA1124(Q,R,S)	TRANSISTOR		
Q17 ,18			2SA1535(Q,R,S)	TRANSISTOR		
Q19 ,20			2SC3944(Q,R,S)	TRANSISTOR		
Q21 ,22			2SA733(A)(Q,P)	TRANSISTOR		
Q21 ,22			2SA933S(Q,R)	TRANSISTOR		
Q23 -26			2SC2878(B)	TRANSISTOR		
Q27			2SA733(A)(Q,P)	TRANSISTOR		
Q27			2SA933S(Q,R)	TRANSISTOR		
Q28 ,29			2SC1740S(Q,R)	TRANSISTOR		
Q28 ,29			2SC945(A)(Q,P)	TRANSISTOR		

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KA-88

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Q30			2SA733(A) (Q,P)	TRANSISTOR		
Q30			2SA933S(Q,R)	TRANSISTOR		
Q31			2SD882	TRANSISTOR		
Q32			2SA954(L,K)	TRANSISTOR		
Q39			DTA124EN	DIGITAL TRANSISTOR		
<b>TONE UNIT (X11-263X-XX)</b> Japan made:0-11 Singapore made:0-10						
D1 -19			B30-1223-05	LED(LN21CPH(V)-C)		
C1 ,2			CF92FV1H104J	MF 0.10UF J		
C3 ,4			CF92FV1H223J	MF 0.022UF J		
C5 ,6			CF92FV1H333J	MF 0.033UF J		
C7 -10			CE04KW1H010M	ELECTRON 1.0UF 50WV		J
C7 -10			CE04LW1H010M	ELECTRON 1.0UF 50WV		S
C11 ,12			CE04KW1C100M	ELECTRON 10UF 16WV		J
C11 ,12		*	CE04LW1C100M	ELECTRON 10UF 16WV		S
C13			CE04KW1C101M	ELECTRON 100UF 16WV		J
C13			CE04LW1C101M	ELECTRON 100UF 16WV		S
C14 ,15			CE04KW1C100M	ELECTRON 10UF 16WV		J
C14 ,15		*	CE04LW1C100M	ELECTRON 10UF 16WV		S
C21 ,22			CE04KW1H3R3M	ELECTRON 3.3UF 50WV		J
C21 ,22			CE04LW1H3R3M	ELECTRON 3.3UF 50WV		S
C23 ,24			CK45FB1H391K	CERAMIC 390PF K		
C25 ,26			CK45FB1H152K	CERAMIC 1500PF K		
C27 ,28			CE04KW1H3R3M	ELECTRON 3.3UF 50WV		J
C27 ,28			CE04LW1H3R3M	ELECTRON 3.3UF 50WV		S
C29 ,30			CE04KW1C100M	ELECTRON 10UF 16WV		J
C29 ,30		*	CE04LW1C100M	ELECTRON 10UF 16WV		S
C31 ,32			CE04KW1H010M	ELECTRON 1.0UF 50WV		J
C31 ,32			CE04LW1H010M	ELECTRON 1.0UF 50WV		S
C33 ,34			CE04KW1HR22M	ELECTRON 0.22UF 50WV		J
C33 ,34			CE04LW1HR22M	ELECTRON 0.22UF 50WV		S
C35 ,36			CE04KW1HR47M	ELECTRON 0.47UF 50WV		J
C35 ,36			CE04LW1HR47M	ELECTRON 0.47UF 50WV		S
C37 ,38			CE04KW1HOR1M	ELECTRON 0.1UF 50WV		J
C37 ,38			CE04LW1HOR1M	ELECTRON 0.1UF 50WV		S
C39 ,40			CE04KW1HR22M	ELECTRON 0.22UF 50WV		J
C39 ,40			CE04LW1HR22M	ELECTRON 0.22UF 50WV		S
C41 ,42			CF92FV1H333J	MF 0.033UF J		
C43 ,44			CF92FV1H823J	MF 0.082UF J		
C45 ,46			CF92FV1H123J	MF 0.012UF J		
C47 ,48			CF92FV1H333J	MF 0.033UF J		
C49 ,50			CF92FV1H512J	MF 5100PF J		
C51 ,52			CF92FV1H123J	MF 0.012UF J		
C53 ,54			CF92FV1H202J	MF 2000PF J		
C55 ,56			CF92FV1H472J	MF 4700PF J		
C57 ,58			CK45FB1H821K	CERAMIC 820PF K		
R41			RD14GB82E100J	FL-PROOF RD 10 J 1/4W		
VR1			RD6-5176-05	POTENTIOMETER		
VR2		*	RD1-5063-05	POTENTIOMETER		
S1 -5			S40-1064-05	PUSH SWITCH		
S6			S40-4074-05	PUSH SWITCH		
S7 ,8			S40-2351-05	PUSH SWITCH		
D20			HSS104	DIODE		
D20			1SS133	DIODE		

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D21 ,22 D21 ,22 D23 ,24 D23 ,24 IC1 ,2			HZS2.7N(B2) RD2.7ES(B2) HSS104 1SS133 M5229P	ZENER DIODE ZENER DIODE DIODE DIODE IC(7CH GRAPHIC EQUALIZER)		J
IC3 IC3 Q1 ,2 Q1 ,2 Q3 ,4  Q3 ,4			NJM2058D UPC4574C 2SA733(A)(Q,P) 2SA933S(Q,R) 2SC1740S(Q,R)  2SC945(A)(Q,P)	IC(OP AMP X4) IC(OP AMP X4) TRANSISTOR TRANSISTOR TRANSISTOR  TRANSISTOR		

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# KA-88

## SPECIFICATIONS

### Rated Power Output (Except for Europe and UK)

100 watts per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.05% total harmonic distortion. (FTC)

### Both channel driven at 1 kHz into

8 ohms ..... 120 W + 120 W

### Maximum continuous output power (for Europe and UK)

(IEC) from 63 Hz to 12,500 Hz 0.7% T.H.D.

at 8 ohms ..... 90 W + 90 W

(DIN) 1,000 Hz at 8 ohms ..... 90 W + 90 W

Total Harmonic Distortion ..... 0.004% at 1/2 rated power into 8 ohms at 1 kHz

Intermodulation Distortion ..... 0.03% at rated power (60 Hz : 7 kHz = 4 : 1) into 8 ohms

Damping Factor ..... 30 (50 Hz at 8 ohms)

Power Bandwidth ..... 10 Hz to 100 kHz at 0.2% T.H.D. 8 ohms

Frequency Response ..... 10 Hz to 70 kHz, +0 dB, -3 dB

### Signal-to-Noise Ratio (IHF-A)

Phono ..... 75 dB for 2.5 mV input

Tuner, Tape, CD/AUX ..... 100 dB

### Input Sensitivity/Impedance

Phono ..... 2.5 mV/47 k ohms

Tuner, Tape play, CD/AUX ..... 150 mV/33 k ohms

Phono Maximum Input Level ..... 100 mV, T.H.D. 0.05% at 1 kHz

### Output Level/Impedance

Tape REC (Pin) ..... 150 mV/330 ohms

Phono Frequency Response ..... RIAA standard curve  $\pm 0.5$  dB (20 Hz to 20,000 Hz)

### Graphic Equalizer Control

(60 Hz, 150 Hz, 400 Hz, 1 kHz, 2.4 kHz, 6 kHz, 15 kHz) .....  $\pm 10$  dB

Loudness Control ..... +8 dB at 100 Hz (at -30 dB VOLUME Level)

### General

Power Consumption ..... 4 A (U.S.A. & Canada models)  
180 W (Europe & Australia models)  
230 W (Other countries)

Dimensions ..... W: 440 mm (17-5/16")  
H: 133 mm (5-1/4")  
D: 275 mm (10-13/16")

Weight (Net) ..... 7.5 kg (16.5 lb)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige, Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

### Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

## KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

### KENWOOD U.S.A. CORPORATION

2201 East Dominguez Street, Long Beach, CA 90810,  
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

### KENWOOD ELECTRONICS CANADA INC.

P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

### KENWOOD ELECTRONICS BENELUX N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

### KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrucker-Str. 15, 6056 Heusenstamm, West Germany

### TRIO-KENWOOD FRANCE S.A.

Hi-Fi-VIDEO-CAR Hi-Fi

13, Boulevard Ney, 75018 Paris, France

### TRIO-KENWOOD U.K. LTD.

17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UG6 8UP England

### KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

### KENWOOD & LEE ELECTRONICS, LTD.

Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong